

Surgery for spinal stenosis linked to lower mortality and costs, compared to nonoperative treatment

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For patients with spinal stenosis, operative treatment is associated with a lower risk of death and lower costs over two years, compared with

nonoperative treatment, suggests a study in the February issue of *The Journal of Bone & Joint Surgery*.

Based on extensive analysis of Medicare data, the study by Raymond Hwang, MD, MEng, MBA, of New England Baptist Hospital and colleagues is one of the first to directly compare the outcomes and costs of operative and nonoperative treatment for patients with spinal stenosis.

Lower mortality with operative versus nonoperative treatment for spinal stenosis

Patients with spinal stenosis experience narrowing of the spinal canal and compression of spinal nerves, causing back pain, leg pain, and other symptoms. In some patients, stenosis is related to degenerative spondylolisthesis, referring to "slipped" vertebrae often resulting from spinal degeneration.

Operative treatment of spinal stenosis can include the use of a laminectomy to decompress the spinal canal, a spinal fusion to stabilize the spine, or a combination of both. Nonoperative treatment can include the use of medications, steroid injections, and physical therapy.

Spine surgery has been shown to be cost-effective in reducing pain and restoring function. Many patients experience improved quality of life and mobility following surgery—which might promote [general health](#) and thus lead to a reduced risk of death. "However, the effect of [spine surgery](#) relative to nonsurgical management on these important outcomes has not been well described," Dr. Hwang and coauthors write.

The researchers analyzed data on 61,534 Medicare patients with spinal stenosis alone and 83,813 with stenosis and spondylolisthesis. Among these patients, 37% of those with stenosis alone and 52% of those with

stenosis and spondylolisthesis were managed operatively; the most common procedures were laminectomy and spinal fusion, respectively. In both groups, the average age was about 73 years.

Patients undergoing operative versus nonoperative treatment were matched in terms of demographic characteristics and [health status](#) (based on Risk Stratification Index). Predicted mortality rates were similar between the operative and nonoperative groups, indicating that the groups were well-matched.

However, in most comparisons, the actual two-year risk of death was higher in the nonoperative group. For example, among patients with stenosis alone, mortality rates were 3.7% for nonoperative treatment versus 2.5% for laminectomy, as assessed in matched cohorts. For patients with spondylolisthesis, [mortality rates](#) were 2.3% for nonoperative treatment versus 1.3% for laminectomy and fusion. In adjusted analyses, the relative risk of death was 28% lower in operatively managed patients.

Costs vary with diagnosis and type of surgery for spinal stenosis

Nonoperatively treated patients tended to require more [health care](#), including pain medication, magnetic resonance imaging scans, and physical therapy. Among patients with spinal stenosis and spondylolisthesis, Medicare costs were lower with [surgical treatment](#). For example, the average two-year costs were \$47,667 for patients who underwent a laminectomy compared with \$68,890 for those who were nonoperatively managed.

Among patients with stenosis alone, costs were lower in those who underwent laminectomy compared with nonoperative treatment: \$34,998 versus \$59,071. In contrast, costs were higher in patients who underwent

spinal fusion compared with nonoperative treatment: \$67,451 versus \$60,540.

Mortality was similar for patients undergoing combined fusion and laminectomy, as compared with either procedure alone. "However," the researchers write, "laminectomy alone was associated with significantly lower two-year payments when treating stenosis with or without spondylolisthesis."

The study provides new evidence linking spine surgery to [lower mortality](#) and lower costs among Medicare patients with [spinal stenosis](#). For those without spondylolisthesis, costs are lower with laminectomy and higher with fusion. The researchers point out some limitations of their study, including the possible effects of unrecognized confounding factors.

These findings may have important implications for [clinical practice](#), especially considering recent increases in the use and costs of lumbar fusion surgery. Based on the observed mortality and cost reductions, "The current study suggests that this trend may be justified within the Medicare population" for well-selected [patients](#), Dr. Hwang and coauthors conclude.

More information: Raymond W. Hwang et al, Surgical Treatment of Single-Level Lumbar Stenosis Is Associated with Lower 2-Year Mortality and Total Cost Compared with Nonsurgical Treatment: A Risk-Adjusted, Paired Analysis, *The Journal of Bone & Joint Surgery* (2023). 10.2106/JBJS.22.00181

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